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EDITED BY

WILLIAM COLE, F.L.S., F.E.S.,

Honorary Secretary and Curator.

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The Authors alone are responsible for the statements and opinions contained in their respective papers.

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and Advertisements to Messrs. BENHAM and Co., Printers, Colchester.

The Fauna and Flora of Essex,

As Illustrated in the

ESSEX MUSEUM OF NATURAL HISTORY.

I have great pleasure in announcing that the Essex Museum of Natural History has now been furnished with four blocks of handsome Cabinets intended to contain a County series of Insects, Mollusca, and Crustacea. Several new Wall-cases have been made so as to suitably accommodate the Collection of British Mammalia, which has lately received numerous additions, including models (the work of Sherrin Bros.) of the Essex Cetacea. We have also constructed eight Herbaria Cabinets, to house the series of specimens of Flowering Plants, Mosses, Algæ Lichens, &c. More space can now be allotted to the collection illustrating the works of Early Man, and this is also being re-arranged. Work on these collections will now be taken in hand, and it is hoped that they will prove helpful to students, and will lead to a greater interest being taken in the Essex Fauna and Flora. To aid in this work we are acquiring some of the best Faunistic books on British Natural History, which will be available for consultation in the Museum itself.

I need not point out to my fellow Members and friends the great difficulty often experienced in obtaining authentic specimens from a limited district. I should highly esteem any aid that County and London Collectors could afford. Localised specimens of Essex Birds, Fish and Mammals, Insects of all orders, Land and Freshwater and Marine Shells, Plants, etc., if in good condition, will be of the greatest assistance, and donors will have the satisfaction of knowing that their specimens will be properly preserved, and will be available for study in the future.

Birds, Fish and Mammals in the flesh may be forwarded direct to the Taxidermists, Messrs. Sherrin Bros., 38, Fielding Road, Chiswick, London, W. A post card should precede the specimens. Carriage may be charged forward.

WILLIAM COLE,
Hon. Secretary and Curator.

ESSEX MUSEUM OF NAT. HIST.,
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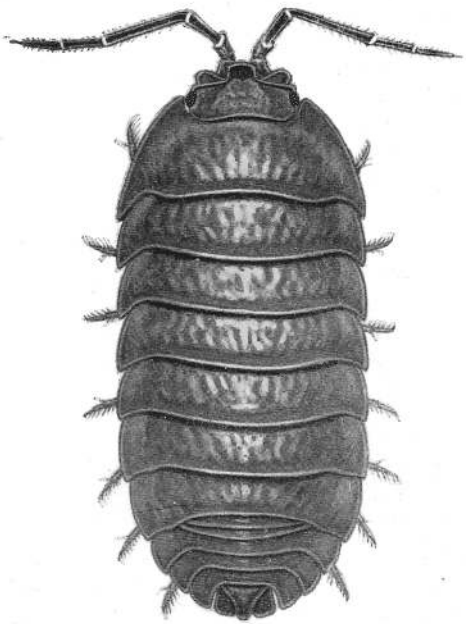
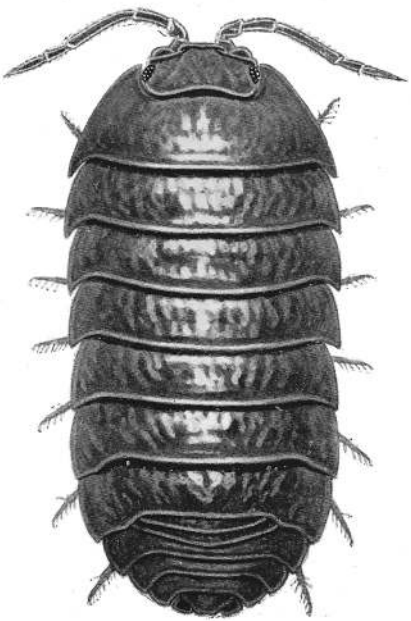
January, 1906.



ARMADILLIDIUM NASATUM Budde-Lund.
Length, fifteen millimetres.

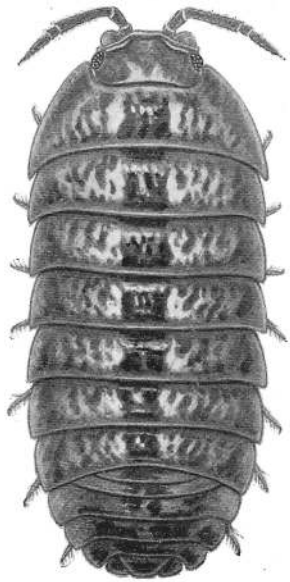
Charles Sillem, del. ad nat. F. W. Reader, sculpt.



ARMADILLIDIUM VULGARE Latreille.

Length, fifteen millimetres.

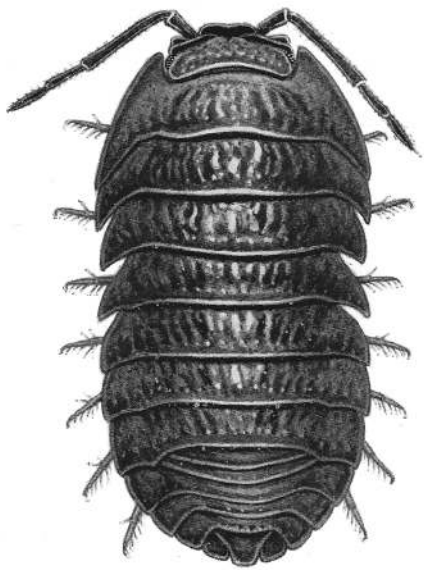
Charles Sillem, del. ad nat. F. W. Reader, sculpt.



ARMADILLIDIUM PULCHELLUM Zencker.

Length, five millimetres.

Charles Sillem, del. ad nat. F. W. Reader, sculpt.



ARMADILLIDIUM DEPRESSUM Brandt.
Length, fifteen millimetres.

Charles Sillem, del. ad nat. F. W. Reader, sculpt.

Some specimens found by Mr. Webb in 1899 at Eton were submitted to Mr. Stebbing, and since then the former has found *Porcellio rathkei* to be pretty generally distributed in West Middlesex, where the species appears to frequent the open fields.

Air-tubes occur in abdominal appendages 1 to 5 and the white appearance of all of these at once serves to distinguish the living animal from *Porcellio scaber* in which the first two pairs of abdominal appendages alone are white.

FIG. 50.—FLAGELLUM AND LAST PEDUNCULAR JOINT OF THE ANTENNA OF *Porcellio rathkei*.

BRITISH LOCALITIES:—

England: Eton; (Stebbing, 71a): Lane End; (Stebbing, from the Misses Johnston, 71a): Acton; Ealing; Hanwell; Southall; Northolt; Greenford; West Drayton; Mortlake; (W.M.W.): Sunderland; (Brady, 50a).

FOREIGN DISTRIBUTION:—

Europe: France; (25): Bosnia; Servia; (22); Hertzogovania (B.M.); Norway; Northern, Western, and Middle Europe, everywhere; (59): Corfu (B.M.)

Asia: Transcaucasia; (59).

North America: (59).

Porcellio laevis Latreille. PLATE XVII.

FIG. 51.—FLAGELLUM AND LAST PEDUNCULAR JOINT OF THE ANTENNA OF *Porcellio laevis*.

1804 *Porcellio laevis* Latreille (37), p. 46.
1827 *Porcellio degeerii* Savigny and Audouin (61), p. 289.
1833 *Porcellio cucercus* Brandt (3), p. 177.
1833 *Porcellio syriacus* Brandt (3), p 178.
1833 *Porcellio musculus* Brandt (3), p. 180.
1833 *Porcellio cinerascens* Brandt (3), p. 178.
1833 *Porcellio dubius* Brandt (3), p. 178.
1837 *Porcellio poeyi* Guérin (30), p. 6.
1844 *Porcellio urbicus* Koch (34), part 36, pl. IV.
1847 *Porcellio flavipes* Koch (35), p. 206, pl. VIII., fig. 97.
1853 *Cylisticus laevis* Schnitzler (65), p. 25.
1857 *Porcellio cubensis* Saussure (60), p. 307.
1857 *Porcellio sumichrasti* Saussure (60), p. 307.
1857 *Porcellio cotillæ* Saussure (60), p. 307.
1857 *Porcellio aztecus* Saussure (60), p. 307.
1857 *Porcellio mexicanus* Saussure (60), p. 307.

Another smooth species is *Porcellio laevis*. The colour of its body is light grey with irregular white markings. The large size of this species and the very long tail-appendages of the males are features which will help to identify it. The distal joint of the flagellum is slightly the longer and as in the last species *(P. rathkei)* the flagellum is equal in length to the last joint of the peduncle. The chief habitats for this species are among vegetable rubbish near human dwellings.

Only the first two abdominal appendages contain air-tubes.

BRITISH LOCALITIES:—

England: Maldon; (W.M.W. from R.M.): Ipswich (1892); Hanwell; Wimbledon; (W.M.W.): Kent; (Kinahan 32).

Ireland: Dublin; (Bate and Westwood, 1): Blackrock; Dundrum; Co. Dublin; Galway; (R.F.S.)

FOREIGN DISTRIBUTION:—

Europe: France; (25): Spain; (15): Sicily; (19): Hertzogovania; (22): Sweden; Denmark; Germany; Belgium; Austria; Italy; Dalmatia; Greece; Turkey; (59); Corfu; (B.M.): Inca, Majorca (23); (B.M.—Pocock and Thomas.)

Asia: Syria; Turkestan; (21).

Africa: Morocco; Algeria; Tunis; Tripoli; Senegal; Egypt; (23).

Atlantic Isles: Bermudas; Azores; Canaries; Cape Vera; Madeira; (24).

America: North America; Mexico; Peru; Brazil; Chili; West Indies; Pacific Islands; (59); Sandwich Isles; (B.M.)

Porcellio ratzeburgii Brandt. PLATE XVIII.

1833 *Porcellio ratzeburgii* Brandt, (3), p. 178.
1839 *Porcellio nemorensis* Koch (34), part 28. pl. XIX.
1839 *Porcellio lugubris* Koch (34), part 28, pl. XX.
1853 *Porcellio quercum* Schnitzler (65), p. 24.
1898 *Porcellio ratzeburgii* Sars (59), p. 182, pl. LXXX, fig. 1.

There are granulations on the middle of the segments in *Porcellio ratzeburgii* and the sides of its body are more nearly parallel than in the other species of *Porcellio*; the frontal lobe is, practically speaking, semicircular and the lateral plates of the thorax flank the head to a considerable extent. As in *Porcellio pictus*, the dark band is in the middle of the back. The distal joint of the flagellum is nearly twice as long as the proximal, and the flagellum is shorter than the last joint of the peduncle. This species was added to the British list by Mr. Webb (74) in 1898.

FIG. 52.—FLAGELLUM AND LAST PEDUNCULAR JOINT OF THE ANTENNA OF *Porcellio ratzeburgii*

Porcellio ratzeburgii agrees with *Porcellio rathkei* in having air-tubes in the first five abdominal appendages.

BRITISH LOCALITIES:—

England: Warley; Brightlingsea; young examples (W.M.W.): Maldon; young examples (W.M.W. from R.M.)

FOREIGN DISTRIBUTION:—

Europe: Trafoi St. Martini, and Capitello, in the Tyrol; (Norman, 50); East Alps, very common; Val-de-Joux; Massif de la Chartreuse Vaulnaveys (25): Bosnia; (22): Norway; Central Europe; Upper Pfaltz; Bohemia; Saxony; Rhaetia; (59).

Genus—**METOPONORTHUS** Budde-Lund, 1879 (7), p.4

Porcellionides Miers, 1876 (44), p. 98.

Flagellum, with two joints; abdomen, narrow; frontal lobe not developed.

The hinder legs of *Metoponorthus* are proportionately longer than in any other Oniscidæ save *Philoscia*. Both genera have a narrow abdomen, but *Philoscia* has an extra joint to the flagellum, and shows no sign of lateral lobes to the head.

Metoponorthus pruinosus Brandt. PLATE XIX.

1833 *Porcellio pruinosus* Brandt (3), p. 181.
1840 *Porcellio truncatus* Milne-Edwards (46), p. 173
1840 *Porcellio maculicornis* Koch (34), part 34, pl. XVI.
1853 *Porcellio frontalis* Lereboullet (39), p. 63, pl. I, fig. 17.
1868 *Porcellio pruinosus* Bate and Westwood (1), p. 487.
1877 *Porcellio (Porcellioides) flavo-villatus* Miers (45), p. 669 pl., LXVIII., fig. 4.
1898 *Metoponorthus pruinosus* Sars (59), p. 184, pl. LXXX., fig. 2.

Undamaged specimens of *Metoponorthus pruinosus* are of a beautiful bluish-grey colour, owing to a "bloom" which is easily brushed off, revealing a dark reddish-brown tint beneath it. The antennæ are long and have white markings upon them.

Air-tubes occur in the first two abdominal appendages.

FIG. 53.—FLAGELLUM AND LAST PEDUNCULAR JOINT OF THE ANTENNA OF *Metoponorthus pruinosus*.

BRITISH LOCALITIES:—

England: Maldon; (W.M.W. from R.M.): Hanwell; Eton Wick; Kew; Ipswich; Stoke-on-Trent; (W.M.W.): Chiselhurst; Oxford; (Bate and Westwood): Berkhamsted; Burnmoor; Durham; (Norman, 49): Exeter; (Parfitt, 53); Torquay; (B.M.—T.R.R.S.)

Scotland: Banff; (Thomas Edwards in Norman, 49).

Ireland: Dublin; (Kinahan, 32): Foyle District; Donegal; Galway; Clonbrock, Co. Galway; Mornington, Co. Meath; Santry; Gleeson Park; Dundrum, Co. Dublin; Bray; (R.F.S.)

FOREIGN DISTRIBUTION:—

Europe: Practically all the Countries of Europe are given in Dollfus' list; (23).

Asia: Japan; China; Syria; Ceylon; Sumatra; Celebes; Phillipines; Caucasus; Himalayas; (23): Christmas Island; (B.M.)

Africa: Generally distributed; Madagascar; Seychelles; (23).

Atlantic Isles; (23).

America: North and South, almost everywhere, to judge from M. Dollfus' list; (23).

Australia: New Caledonia; (23).

Metoponorthus cingendus Kinahan. PLATE XX.

1857 *Porcellio cingendus* Kinahan (32), p. 279, pl. XIX., figs. 1468-9.
1868 *Porcellio cingendus* Bate and Westwood (1), p. 489.
1885 *Metoponorthus simplex* Budde-Lund (8), p. 188.

The colour of *Metoponorthus cingendus* is steel blue with red or yellowish spots. It has a raised line across each thoracic segment and its abdomen is narrower than in *Metoponorthus pruinosus*.

FIG. 54.—FLAGELLUM AND LAST PEDUNCULAR JOINT OF THE ANTENNA OF *Metoponorthus cingendus*.

BRITISH LOCALITIES:—

England: Salcombe, Devon; (Norman, 49): South Devon; (Stebbing in 49).

Ireland: Dublin; (B.M. from Kinahan); Mountain Districts of Dublin, Wicklow, and Cork; Coast of Kerry; Arran Islands; Achill, Co. Mayo; Roundstone, Co. Galway; Mallow, Caef Island; Glandore; Brock Haven, Co. Cork; Killoughrim Forest, Co. Wexford; Kenmare, Co. Kerry; (R.F.S.).

FOREIGN DISTRIBUTION:—

Europe: France; (25): Spain; (12).

(2.) Able to roll up into a ball.

Genus—**CYLISTICUS** Schnitzler, 1853 (65), p. 24.

Flagellum, with two joints; abdomen broad; frontal lobe, very small.

The characters given immediately above are almost those of *Porcellio*, with which *Cylisticus* might, perhaps, be confounded. The latter has the power, however, of rolling itself into a ball, and the first segment of the thorax is comparatively larger than in any species of *Porcellio*, indeed the side plates of the segment in question entirely flank the head. These features, as well as the straight sides of the body and the arched back, connect *Cylisticus* with *Armadillidium*, from which the former is, however, at once separated by its long pointed tail appendages.

Cylisticus convexus De Geer. PLATE XXI.

1778 *Oniscus convexus* De Geer (10), p. 553, pl. XXXV., fig. 11.
1833 *Porcellio spinifrons* Brandt (3), p. 177.
1836 *Porcellio laevis* Koch (34), part 6, pl. I.
1853 *Porcellio armadilloides* Lereboullet (39), p. 65, pl. I., fig. 18.
1853 *Cylisticus laevis* Schnitzler (65), p. 25.
1868 *Porcellio armadilloides* Bate and Westwood (1), p. 485.
1898 *Cylisticus convexus* Sars (59), p. 186, p. LXXXI.

There is but a single species of *Cylisticus* found in this country, so that it is not necessary for us to go into much further detail with regard to it. *Cylisticus convexus* has the two joints of the flagellum about equal, and they together in turn closely approximate in length to the last joint of the peduncle. Mr. Stebbing says, in a letter, that British examples do not appear to have the "white tail-piece" seen in Continental ones. It is not noticeable in the preserved specimens which we have seen from Berkhamsted and Leixlip, but it is very evident in the living ones found at Hanwell and Maidstone.

The abdominal appendages 1 to 5 are provided with air-tubes.

FIG. 55.—FLAGELLUM AND LAST PEDUNCULAR JOINT OF THE ANTENNA OF *Cylisticus convexus*.

BRITISH LOCALITIES:—

England: Maldon; (W.M.W. from R.M.): Hanwell; Bluebell Hill, Maidstone; Eton; (W.M.W.): Berkhamsted; Portland; (Norman, 49).

Scotland: Salisbury Crags; Edinburgh; Lanarkshire; Rothesay; (Scott, 68): Killwinning; (John Smith *fide* Robertson, 57): Highgate; (Bate and Westwood, 1).

Ireland: Leixlip, Co. Dublin; Tempo, Co. Fermanagh; Goresbridge, Co. Kilkenny; (R.F.S.)

FOREIGN DISTRIBUTION:—

Europe: France; (25): Sweden; Norway; Denmark; Germany; Bohemia; Holland; Belgium; Turkey; Caucasus; (59).

North America; (59).

Family—ARMADILLIDIIDÆ.

Tail appendages not projecting when the animal is walking.

Genus—**ARMADILLIDIUM** Brandt, 1833 (3), p. 184.

Flagellum, with two joints; outer division of the tail appendages expanded and broader at the hinder end.

The members of the genus *Armadillidium* are more likely to be confounded, by the uninitiated, with the "Pill-millipedes" than with other Woodlice. Excepting *Cylisticus* (which has long pointed tail appendages) no other British forms have the power of rolling themselves up into a complete ball. The very arched body is characteristic of *Armadillidium*, and so is the groove into which the basal joints of the antennæ fit when the creatures curl up.

The first two abdominal appendages only are provided with air-tubes.

FIG. 56.—FLAGELLUM AND LAST PEDUNCULAR JOINT OF THE ANTENNA OF *Armadillidium nasatum*.

Armadillidium nasatum Budde-Lund, 1885. PLATE XXII:

1885 *Armadillidium nasatum* Budde-Lund (8), p. 51.
1892 *Armadillidium nasatum* Dolltus (14), p. 10, fig. 12.
1899 *Armadillidium nasatum* Norman (misprinted *Porcellidium*) (49), p. 57, pl. VI., figs. 5-8.

Armadillidium nasatum has a narrow but very prominent frontal lobe, which is almost square and curves somewhat upwards and backwards. The joints of the flagellum are approximately equal, and are together of the same length as the last peduncular joint.

The telson is as long as it is broad at the base, and tapers to a roundish point, while its sides are slightly incurved.

The outer divisions of the tail appendages are considerably longer than broad, and are more or less paddle-shaped.

It will be noticed that the slope from thorax to telson is more gentle than in the common species, *Armadillidium vulgare*, and the first thoracic segment is not so greatly developed. Consequently the species which we are considering does not produce a perfect sphere, and the antennæ are not hidden when

it rolls up. It is interesting to compare this species with *Cylisticus convexus*. The surface of the body is smooth, and its colour is a delicate brownish grey with more or less distinct rows of darker markings.

BRITISH LOCALITIES :-

England : Maldon ; (W.M.W. from R.M.) : Bluebell Hill, Maidstone (W.M.W.) ; Clifton, banks of the Avon ; (W.M.W. from J.T.C. 1900) : Leigh Woods, Clifton ; Tunbridge Wells ; South Devon ; (Stebbing in 49) ; Cheddar Cliffs, Somerset ; (Norman, 49).

FOREIGN DISTRIBUTION :—

Europe : France ; (28) : Spain ; (12) : Italy ; (23).

Armadillidium vulgare Latreille. PLATE XXIII.

1804 *Armadillo vulgaris* Latreille (37), p. 48.
1804 *Armadillo variegatus* Latreille (37).
1853 *Armadillo ater* Schnitzler (65), p. 48.
1816 *Armadillo maculatus* Risso (56), p. 158.
1818 *Armadillo pillularis* Say (621, p. 432.
1825 *Armadillo pustulosus* Dermarest (11), p. 323, pl. XLIX.
1830-4 *Armadillidium commutatum* Brandt and Ratzeburg (4), p. 81, pl. XIII., fig, 123.
1833 *Armadillidium zenckeri* Brandt (3), p. 185.
1839 *Armadillo trivialis* Koch (34), part 28, pl. XIV.
1898 *Armadillidium vulgare* Sars (59), p. 189, pl. LXXXII.

The common pill woodlouse is *Armadillidium vulgare*. Its frontal lobe is not large, though it is broad, while its margin where it joins the head is rounded and slightly recurved. The proximal joint of the flagellum is somewhat the shorter and the two together, as in *Armadillidium nasatum*, are of about the same length as the last joint of the peduncle.

The telson has the form of a triangle with the angles truncated and is about as long as it is broad at the base. The outer divisions of the tail appendages are considerably broader than they are long.

The species can roll itself up into a very perfect sphere, and when it assumes this form its antennæ are hidden beneath the much expanded lateral plates of the first thoracic segment.

FIG. 57.—FLAGELLUM AND LAST PEDUNCULAR JOINT OF THE ANTENNA OF *Armadillidium vulgare*.

The body is smooth, shiny, and strongly arched. Its colour varies very considerably, generally it is of a slaty-grey, but yellow markings are often present to a greater or less extent. In a specimen before us (from Bluebell Hill, Maidstone) the head is of a

uniform dark grey, the sides of the thorax are yellow, while the back is mottled with the same colour. The abdomen, including the telson, is also yellow with the exception only of the tail appendages, which are dark grey.

BRITISH LOCALITIES:—

England: Warley; (W.M.W): Maldon; (W.M.W. from R.M.): Brightlingsea; Hanwell; Mortlake; Bluebell Hill, Maidstone; Langley; Skirmett; Pamber Forest; Kingston-on-Soar; Ipswich; (W.M.W.); Lynmouth; (W.M.W. from J.T.C.)

Scotland: (Scott, 68.)

Ireland: Ardrahan; (Norman, 50): Borris, Co. Carlow; Glandare, Terneay, Co. Cork; Courtstown, Co. Wexford; Cappagh, Co. Waterford; Castel, Co. Tipperary; (R.F.S.)

FOREIGN DISTRIBUTION:—

Europe: Throughout; (23).
Asia: Damascus; (23).
Africa: Algeria; (23).
Atlantic Isles: (23).
America: North and South; (23).
Australia: Melbourne (64 quoting Budde-Lund); New Zealand; (23).

FIG. 58.—FLAGELLUM AND LAST PEDUNCULAR JOINT OF THE ANTENNA OF *Armadillidium pulchellum*.

Armadillidium pulchellum Zencker. PLATE XXIV.

1799 *Oniscus pulchellus* Zencker (78) (quoted by Koch in Panzer), part 62, pl. XXI.
1833 *Armadillidium pulchellum* Brandt (3), p. 188.
1861 *Armadillo maculatus* Sill (69), p. 5.
1870 *Armadillidium pictum* Plateau (not Brandt) (55), p. 116.
1898 *Armadillidium pulchellum* Sars (59), p. 191, pl. LXXXIII., fig. 4.

The smallest British species is *Armadillidium pulchellum*. The frontal lobe projects so as to make the head somewhat triangular. The antennæ are very short and the distal joint of the flagellum is three times the length of the other, while the two together are not as long as the last peduncular joint.

The telson is truncated at the end so that it is by no means as long as it is broad at the base, and the outer divisions of the tail appendages are in similar proportion.

The colour of the body (which is smooth) is dark brown with four important series of light patches running down the back and less marked variegations between them.

BRITISH LOCALITIES:—

England : Matlock ; (T.R.R.S.) Arnside ; Westmorland (Brady, 50a).

Ireland : Ballymote, (Irish Nat., May, 1901), Sligo ; (Scharff).

FOREIGN DISTRIBUTION:—

Europe : Vosges ; Switzerland ; Pyrenees ; (23) : Forest de Soignes ; Belgium ; (14).

Armadillidium depressum Brandt. PLATE XXV.

1833 *Armadillidium depressum* Brandt (3), p. 82. pl. XII., figs, 4, 5, 6, C, D.
1892 *Armadillidium depressum* Dollfus (14), p. 17-18.

The frontal lobe in *Armadillidium depressum* is very prominent and much recurved. The antennæ are fairly long and while the two joints of the flagellum are nearly equal they are together not so long as the last peduncular joint.

FIG. 59.—FLAGELLUM AND LAST PEDUNCULAR JOINT OF THE ANTENNA OF *Armadillidium depressum.*

The telson is slightly longer than it is broad at the base, and its sides are incurved. As in *Armadillidium vulgare* and *Armadillidium pulchellum* the outer divisions of the tail appendages are broader than they are long.

The body is flatter than in the other species and bears tubercles ; its colour is a slate-grey with yellowish markings. The first thoracic segment is well developed and the head appears as if almost completely imbedded in it.

BRITISH LOCALITIES:—

England : Clifton, banks of the Avon ; (W.M.W. from J.T.C., 1900) : Shirehampton, near Bristol ; (Stebbing in 49) : Clifton ; (Dollfus from Miers 14).

FOREIGN DISTRIBUTION:—

Europe : France ; Italy ; (25) : Asia Minor ; (14, quoting Brandt).

Distribution of Species. There are not sufficient records at present to enable us to draw any conclusions as to the general distribution of Woodlice in the British Isles, but it is hoped that more attention will be given to these creatures, and that before long there may be other material available.

Conclusion. At the beginning it was mentioned that the present work grew out of an investigation into the fauna of Essex, and in order to show what may be expected when places

are explored in which no collecting has been done, we may briefly indicate the results which we obtained in the county in question.

It was not long before a species new to Britain—to wit, *Porcellio ratzeburgii*—was found (74). This discovery was mentioned by Mr. Stebbing in the *Victoria County History of Essex* (p. 71), and he prophesied that most of the British species then would be met with in the county. We may safely claim to have shown that his prediction was true, for we have been able to record in the preceding pages no less than sixteen other species, as will be seen from the following lists :—

WOODLICE RECORDED FROM ESSEX.

1. *Ligia oceanica*
2. *Ligidium hypnorum*
3. *Trichoniscus pusillus*
4. *Trichoniscus roseus*
5. *Haplophthalmus danicus*
6. *Oniscus asellus*
7. *Philoscia muscorum*
8. *Platyarthrus hoffmannseggii*
9. *Porcellio scaber*
10. *Porcellio pictus*
11. *Porcellio dilatatus*
12. *Porcellio laevis*
13. *Porcellio ratzeburgii*
14. *Metoponorthus pruinosus*
15. *Cylisticus convexus*
16. *Armadillidium nasatum*
17. *Armadillidium vulgare*

Of these *Ligidium hypnorum* calls for special mention, as it had not been found in this country since Mr. Stebbing discovered it in Surrey in 1873. Several of the Porcellios and *Cylisticus convexus* have been met with in but few places, and the same may be said of *Armadillidium nasatum*.

Of the British species not as yet found in, Essex *Trichoniscus vividus* has at present only been recorded from Ireland ; *Philoscia couchii* and *Armadillidium depressum* have not been collected except in the extreme south west of England, while *Metoponorthus cingendus* has hitherto only been noticed in Devonshire and Ireland. The other four species, with the exception of *Porcellio rathkei*, which is well distributed in west Middlesex (and might have been expected to occur in Essex), are still rare. In fact, for *Trichoniscoides albidus* but two British localities are known ; for *Haplophthalmus mengii* three (two in England and one in Ireland) ; while *Armadillidium pulchellum* has only been recorded from two or three places.

In other counties quite as satisfactory results were obtained as in Essex—a systematic search in Buckinghamshire brought to

light at Eton three species which at the time had not been recorded from the British Isles, while in Middlesex, no less than a dozen species were found at Hanwell.

Since part of this contribution was printed our attention has been drawn to some notes by the Rev. Canon Norman and Professor G. S. Brady (50a). These bear out the remarks which have already been made, for among the species found by Professor Brady in the north of England were *Trichoniscoides albidus*, *Haplophthalmus mengii*, *Porcellio rathkei*, and *Armadillidium pulchellum*. In one of Canon Norman's previous papers (50—1903) he claims to have added the second species to the British list, and in the notes in question a similar claim is made with regard to the first and third. It should, however, be pointed out that all three of them were found in Buckinghamshire in 1899 by Mr. Webb, and that they were exhibited at the Nature Study Exhibition held in London in August, 1902. A specimen of *Armadillidium pulchellum* from Matlock was sent to us by the Rev. T. R. R. Stebbing in January, 1904, and was found, we understand, some considerable time previously.

It only remains for us to express our hearty thanks to the numerous friends and correspondents who have given us their ready help. The names of these have been printed in the text, but we would like to mention more particularly Dr. Calman, of the British Museum (Natural History), Monsieur Adrian Dollfus, Mr. Roland Matthams, the Rev. Canon Norman, Dr. Scharff, the Rev. T. R. R. Stebbing, and Miss Willmott.

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Explanation of the initials given in the text :—

B.M.—Specimens in the British Museum (Natural History).
C.S.—Charles Sillem.
J.T.C.—John Thomas Carrington.
J.A.M.—James A. Murie.
R.M.—Roland Matthams.
R.F.S.—R. F. Scharff.
T.R.R.S.—The Rev. Thomas R. R. Stebbing.
W.M.W.—Wilfred Mark Webb.
R.W.—R. Welch.

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THE BOG-MOSSES (SPHAGNACEÆ) OF ESSEX: A CONTRIBUTION TO THE FLORA OF THE COUNTY.

Read by FRED. J. CHITTENDEN, County Technical Laboratories, Chelmsford.

THE present paper is an attempt to collect the scattered records of the occurrence of the Bog-Mosses in Essex, to bring the nomenclature into line with more recently published lists, to define the limits of their distribution at the present day, and to correlate their distribution with the geological formation of the county.

In the *Victoria History of Essex* the following remark occurs respecting the Sphagnaceæ or Bog-mosses: "Comparatively few species of *Sphagna* are recorded, but the list of species of this genus will probably be largely increased by further investigation."

The author, no doubt, had in mind the recent changes in the classification of these organisms, which share with other large and widely spread genera, such as *Rubus*, *Rosa*, and *Hieracium* among land plants, and *Potamogeton*, the *Batrachian Ranunculi* and the *Harpidioid* section of *Hypnum* among aquatics, that difficulty of classification which arises from the presence of only very slight differences and very great likenesses between the forms. This characteristic aggravates the question as to what is a species and causes great differences of opinion among workers in these groups.

In the following list the system of Warnstorf has been followed.[1] This system has been adopted by most Continental and American writers, and in some of the more recent local lists of *Sphagna* in this country.[2] According to Warnstorf's classification 41 species of *Sphagna* occur in this country, while only 12 are recognised in the most recent book on British mosses.[3] This classification is based largely upon the position of the chlorophyllose cells in the branch leaves and the distribution of the pores in the hyaline cells, and is therefore to some extent an artificial one, but the forms so distinguished do, as a rule, according to my experience, correspond with what appears to be a natural grouping of the plants themselves. (But see note under *Sphagna subsecunda* below.)

Several lists have been published. I have been able to find the following:—

(1) 1845. GREENWOOD, A. "Mosses found near Chelmsford." *Phytologist*, Vol. ii.
(2) 1872. PARSONS, Dr. A. F. "Mosses of London District." *Science Gossip*, Vol. viii., p. 64.
(3) 1884. ENGLISH, J. MS. list of Mosses of Epping Forest.
(4) 1890. BUXTON, E. N. "Mosses." *Epping Forest*, Ed. III., pp. 135, 136.
(5) 1891. MARQUAND, E. D. "List of Mosses in Mr. E. G. Varenne's Herbarium." *Essex Naturalist*, Vol. vi., pp. 33.
(6) 1900. HORRELL, E. C. "European Sphagnaceæ." *Journal of Botany*, 1900.
(7) 1901 ? DIXON, H. N., MS. list of N. Essex mosses.
(8) 1903. SHENSTONE, J. C., *Victoria History of Essex*. Article "Botany."

1 HORRELL, E. C., "European Sphagnaceæ," *Journ. of Bot.*, 1900.
2 *e.g.*, INGHAM, W., "Sphagna of Yorkshire and Durham." *Journ. of Bot.*, 1901., p. 145.
3 DIXON, H. N. *Student's Handbook of British Mosses. Ed.* II. (1904).

In addition to these lists there are specimens of bog-mosses collected in Essex, in the following Herbaria :—

(9) British Museum of Natural History.
(10) Essex Field Club Herbarium.

(Including the collections of Messrs. English and Varenne.)

All of these sources of information have been consulted in drawing up the list, and the records duly incorporated.

The Sphagnaceæ so far as their vegetative structure is concerned, form a highly specialized group, and are particularly well adapted for life in situations where there is an abundant and constant supply of water contained in shallow basins and flowing but slowly, if at all. The majority of the species appear to thrive best in the presence of abundant light. These somewhat peculiar conditions are realised in few places in our county, and only, it would seem, where a porous stratum forming the top of a hill meets a non-porous stratum as one goes down the slope. Except where drainage, either for agricultural purposes or for building, has altered the conditions, they are fulfilled wherever the Bagshot Sands overlie the Boulder Clay or the London Clay, and in some places where Glacial Gravel forms the crown of the hill, the lower portion of which is of Boulder Clay or London Clay.

I have collected *Sphagna* in the following localities where London Clay underlies Bagshot Sands—Warley, Norton Heath, High Beach, Galleywood Common, Mill Green, and Hainhault Forest. In all the other localities where I have found these plants growing, the drift maps show Glacial Gravel (Post-glacial at the Rising Sun, Walthamstow), except at the locality in Thomas' Quarters, Epping Forest, and there the map must be at fault. I have not found any *Sphagna* definitely associated with the Boulder Clay that forms so large a part of the surface of the County—possibly owing to the presence of a fairly large proportion of lime in that formation.

[Note.—In the following list the names in brackets refer to the collector of the specimen quoted. I have examined those from localities followed by the sign ! and have collected a specimen in the localities followed by ! !]

SPHAGNA ACUTIFOLIA.

Sphagnum acutifolium Warnst.

[Most, if not all, the old records of this species belong to the next.] I have not seen the following: N. Essex (Dixon), near Chelmsford (Greenwood).

var. purpureum, Wils.

Near Chelmsford (Greenwood).

S. subnitens Russ. and Warnst.

"Bog near the Bald-faced Stag" (Forster)!; Warley Common (young undeveloped form)!!

var. purpurascens Schlieph.

Epping Forest (English)!; Tiptree Heath (Varenne)!; Linguard Common!!

var. versicolor Warnst.

Thomas' Quarters, Epping Forest!!; Galleywood Common (Varenne)!!; Linguard Common!!; Woodham Walter Common and Bergholt Heath (Varenne)!

var. virescens Warnst.

Thomas' Quarters, Epping Forest!!

SPHAGNA SQUARROSA.

S. squarrosum Pers.

"Forest near Snaresbrook" (Forster)!; Galleywood Common (Greenwood)

var subsquarrosum Russ.

Theydon and High Beach (English); Galleywood Common!!; Pod's Wood (Varenne)

var. imbricatum Schimp.

Near "Rising Sun," Walthamstow (Parsons)!!; Galleywood Common

SPHAGNA CUSPIDATA.

S. cuspidatum Ehrh.

N. Essex (Dixon). [In the absence of a specimen it is impossible to tell to which of the segregates this belongs.]

S. recurvum var. *mucronatum* Warnst.

Between Theydon and Wake Arms!!; Epping Forest (English)!; Woodham Mortimer Common (Varenne)!

S. molluscum forma *robusta* Warnst.

Between Theydon and Wake Arms ! ! ; Warley Common ! !

SPHAGNA RIGIDA.

S. compactum D.C.

N. Essex (Dixon).

var. imbricatum Warnst.

High Beach (Varenne) ! ; Thomas' Quarters, Epping Forest ! ! ; Tiptree Heath (Varenne) ! !

var. subsquarrosum Warnst.

Tiptree Heath ! !

SPHAGNA SUBSECUNDA.

[The classification of the species comprising this group rests primarily upon the distribution of the pores on the inner and outer surfaces of the branch leaves, and since almost all possible variations occur, and plants with very varying appearance have a similar distribution of pores, the classification becomes exceedingly difficult. I have regarded all the forms having a conspicuously greater number of pores on the outer surface of the leaf and the stem leaves of medium size as belonging to *S. inundatum*—the type of the group I have failed to find in the county. It is possible that all the forms may have to be regarded as varieties of one and the same species, so closely do they run to one another and so little does the habit seem to be correlated with the anatomical characters in many of them.]

S. inundatum Warnst.

" On the forest by the road from Debden Green to the camp, Ambres' Banks " (Forster) ! ; Thomas Quarters, Epping Forest ! ! ; Wake Valley ! ! ; Strawberry Hill, Epping Forest ! ! ; nr. Mt. Pleasant, Epping Forest ! ! ; Great Monk Wood ! ! ; nr. Rising Sun, Walthamstow ! ! and other parts of Epping Forest near High Beach ; N. Weald, Epping Lower Forest ! ! ; Hainhault Forest ! ! ; Norton Heath ! ! ; Mill Green Common ! ! ; Warley Common (Varenne) ! ! ; Linguard Common ! ! ; Tiptree Heath (Varenne) ! ! ; Little Baddow Common ! ! ; nr. Chelmsford (Greenwood) ; Galleywood Common (Varenne) ! !

S. rufescens Warnst.

Between Theydon and Wake Arms ! !

S. crassicladum Warnst.

Cuckoo Pits, Chingford ! ! ; Galleywood Common ! !

S. obesum Warnst.

High Beach (Varenne) ! !

SPHAGNA CYMBIFOLIA.

S. cymbifolium, Warnst.

Epping (Sidebottam 1843) ! ; Norton Heath (Sidebottam) ! ; nr. Walthamstow (Forster) ! ; (*sub-nom.* var. *compactum*) near Chelmsford (Greenwood).

var. flavo-glaucescens, Russ.

Theydon (Horrell).

var. fusco-glaucescens Russ.

Tiptree Heath ! !

var. glaucescens Warnst.

Theydon (Horrell); Thomas' Quarters, Epping Forest ! ! ; between Theydon and Wake Arms (English) ! ! ; Loughton ! ! ; Warley Common (Varenne) ! ! ; West Bergholt Heath (Varenne) ! ; Pod's Wood (Varenne) ! ; Mill Green Common ! !

var. rubescens Warnst.

Between Theydon and Wake Arms ! ! ; Linguard Common ! ! ; Galleywood Common ! ! ; Little Baddow Common ! !

S. [*papillosum*, Lindb.

This species has been recorded in error (Horrell, *Journ. Bot.*, 1900); the specimen proves to belong to *S. cymbifolium*.]

PRESENTATION TO MR. WILLIAM COLE: A REPORT.

BY MILLER CHRISTY.

[At the request of the Council of the Essex Field Club and myself, the Editor of this journal has been good enough to place at my disposal a few pages in order to publish a report of a matter in which every member of the Club must feel a very special interest, though the Club itself is not officially connected therewith. For this courtesy, I tender thanks on behalf of myself and others concerned.]

THE Foundation of the Essex Field Club, in 1880, was due to the initiative of Mr. William Cole, of Buckhurst Hill, who has acted ever since as its Honorary Secretary. To his energy is due, in the main, the leading position the Club now holds among local scientific societies and the establishment of its two Museums (the Epping Forest Museum, at Chingford, and the Essex Museum of Natural History, at Stratford). He took also a prominent part in the Freeing of Epping Forest.

That a man should continue to act for over a quarter-of-a-century as Honorary Secretary of a society founded by himself is very unusual ; and, for some years past, it has seemed to me that the time was approaching when some movement to recognize formally and publicly Mr. Cole's long-continued and valuable scientific, educational, and other public work (carried on by him at considerable pecuniary sacrifice) would be not only timely but positively called for.

When, therefore, I found myself President of the Club in the twenty-sixth year of its existence, an attempt to initiate some such movement seemed to be a duty laid upon me. On consulting with several Past Presidents, I found that one and all shared my view as to the opportuneness of such a movement. Thus encouraged, I approached others, with a view to forming a Committee to take action ; for it was felt generally that the object aimed at could be attained better by a separate organization than by the Council of the Field Club. Ultimately, an influential Committee of thirty-two persons was formed as follows :—

Professor R. Meldola, F.R.S., Pres.C.S., &c. (*Chairman*).
David Howard, D.L., F.I.C., F.C.S., &c. (*Hon. Treasurer*).
Miller Christy, F.L.S. (*Hon. Secretary*).

Geo. Avenell
John Avery, F.S.S.
Professor G. S. Boulger, F.L.S., F.G.S.
I. Chalkley Gould
J. E. Harting, F.Z.S., &c.
Thomas Vincent Holmes, F.G.S., F.A.I.

A. E. Briscoe, B.Sc., &c., *Late Principal of the Municipal Technical Institute, West Ham*
Rev. R. Ashington Bullen, *Chairman of Council of the Selborne Society*
E. North Buxton, D.L., &c., *Verderer of Epping Forest*
Sir T. Fowell Buxton, Bart., D.L., *Verderer of Epping Forest*
T. F. V. Buxton, *High Sheriff of Essex, J.P., &c.*
J. Byford, jun., *Major of West Ham*
Frederic Chancellor, J.P.
Edward A. Fitch, J.P., C.A., F.L.S., F.E.S.
Peter Gellatly, D.L., *Verderer of Epping Forest, &c.*
The Vicomte Hornecastle, *Chairman Epping Forest Committee of the Corporation of London*
Andrew Johnston, J.P., *Chairman Essex County Council*
Henry Laver, J.P., F.S.A.
F. T. Newton, F.R.S., F.G.S., &c.
E. B. Poulton, F.R.S., F.L.S., &c.
E. A. Read, *Verderer of Epping Forest*
Thomas W. Reader, F.G.S.
F. W. Rudler, I.S.O., F.G.S.
J. C. Shenstone, F.L.S.
John Spiller, F.C.S., F.I.C.
The Countess of Warwick
Wilfred Mark Webb, F.L.S., *Hon. Sec. Selborne Soc.*
William Whitaker, B.A., F.R.S., F.G.S.
E. J. Wythes, J.P., &c.

This Committee included, it will be seen, all the eight Past-Presidents of the Club, with other gentlemen, some of whom are members of the Club, whilst others are not.

During October last, I sent out, in the name of this Committee, to all members of the Club and to many others likely to appreciate Mr. Cole's work, an appeal asking for subscriptions (not exceeding one guinea) to "The William Cole Recognition Fund," and stating that the Committee (having taken steps to ascertain what would be acceptable to Mr. Cole) proposed—

(1) To present to him, as a slight testimony of appreciation of his work, a purse of at least One Hundred Guineas ;

(2) To entertain him, together with his Brothers and Sisters (all of whom have assisted him very greatly in his work), as Guests at a Complimentary Dinner, at which the purse would be presented ; and, further,

(3) To present also to the Guests at the Dinner a formal inscribed Address of Thanks.

The response to this appeal was most gratifying. No fewer than one hundred and sixty-nine ladies and gentlemen (chiefly, of course, members of the Essex Field Club) sent subscriptions varying in amount from 2s. 6d. to the maximum of £1 1s.[1] The Committee found itself, therefore, in possession of a sum sufficient to enable it to hold the proposed dinner, to present a Purse of one hundred and ten guineas, to pay for the engrossing

1 Their names will be found appended to the formal Address, which is printed hereafter.

of the formal Address of Thanks, and to meet the various incidental expenses.

The Dinner was held at the Royal Forest Hotel, Chingford, Essex, on the 9th December 1905, and was an unqualified success. It was attended by nearly one hundred subscribers and their friends (each subscriber having the right to bring a guest), including the special Guests of the Evening—Messrs. William Cole, F.L.S., B. G. Cole, and H. A. Cole, Miss Cole, and Miss Jane Cole. The subscribers and guests were formally received on their arrival by Prof. and Mrs. Meldola, Mrs. Howard, and Mr. Miller Christy.

The chair at the dinner was occupied by Prof. R. Meldola, F.R.S. (first President of the Essex Field Club), and among those present were Mr. T. F. V. Buxton, J.P. (High Sheriff of Essex), Mr. David Howard, J.P., D.L., F.I.C., F.C.S., Mr. Miller Christy, F.L.S. (President of the Essex Field Club), Professor G. S. Boulger, F.L.S., F.G.S., Mr. P. Gellatly, D.L., J.P. (Verderer of Epping Forest), Mr. J. E. Harting, F.Z.S., Mr. T. Vincent Holmes, F.G.S., Mr. E. T. Newton, F.R.S., F.G.S., Mr. W. Mark Webb, F.L.S. (Hon. Sec. of the Selborne Society), Mr. John Spiller, F.C.S., Mr. W. Whitaker, F.R.S., Mr. Horace B. Woodward, F.R.S., Dr. J. H. B. Burrage, M.A. (H.M. Inspector of Secondary Schools and Technical Institutes), Miss Mary H. Cole, Mr. Bryan Corcoran, Mr. John Avery, Mr. F. W. Elliott, Mr. and Mrs. J. A. Finzi, Miss K. M. Hall, F.L.S., the Rev. W. C. Howell, M.A., Mr. W. Ping, F.C.S., Mr. G. E. Pritchett, F.S.A., Mr. Frank W. Reader, Mr. Thomas W. Reader, F.G.S., Mr. J. R. Roberts, Mr. and Mrs. Thomas Royle, Miss Royle, Mr. Matthew Rose, Mr. J. C. Shenstone, Mr. G. E. Vaughan, Mr. Joseph Wilson, and Mr. J. M. Wood. Several others who were expected telegraphed at the last moment expressing regret at their inability to be present. These included Mr. A. E. Briscoe, Mr. J. Byford, jun. (late Mayor of West Ham), Mr. H. I. Coburn (Hon. Solicitor to the Club), and Mr. I. Chalkley Gould.

When the time arrived for speeches,

The CHAIRMAN said: Ladies and Gentlemen, we have met together on this occasion in circumstances of peculiar interest. It is a notable thing in the history of any Society to be enabled to celebrate its half-jubilee. The Essex Field Club has completed twenty-five years of active work, but the interest of this gathering centres chiefly in the fact that what the Club has been

enabled to do is practically the outcome of the single-minded devotion of our chief guest this evening, Mr. William Cole, who has been its active executive officer during the whole period of its existence (Applause). We have met, therefore, to do honour to our Founder, our Hon. Secretary, our Editor, and the Curator of our Museums. In all these capacities, he has served us right loyally for a quarter-of-a-century—(applause)—devoting the best part of his life and energy to this work.

I might speak of Mr. Cole in a collective capacity, like the editorial "we," signifying many; for we all know how the other members of the family have worked with him shoulder to shoulder (Applause).

In case there should be some misapprehension—and I have heard one or two remarks which lead me to believe that there may be some—I wish it to be distinctly understood that this is not a farewell gathering (Applause). It is quite the reverse: it is a renewal of the lease of Mr. Cole's activity. We are glad to know that he is not going to retire upon his laurels, and I am sure I shall be expressing the innermost wishes of all of you when I wish continued health and activity to Mr. William Cole and the members of his family, to continue the good work which he inaugurated more than twenty-five years ago and has carried on so actively ever since.

If there is one thing that stands out clearly in the history of the Essex Field Club, it is the extraordinary vitality and longevity of the officials connected with it. There is not a single blank in our list of Past-Presidents, and I think there is only one gap in the list of officers who have ever given their services to the Society during the whole period of its existence.

It is undesirable that I, who have been put into this most honourable and, I may say, particularly gratifying position, should detain you long with any personal reminiscences. At the same time, it is difficult for me to travel back in the history of my long friendship with the Cole family without saying that I first met our Secretary, some thirty-five years ago, in the glades of Epping Forest (Applause). From the time that this Club was started down to the present moment, it has been my privilege and my pleasure to promote the objects of the Society in every way within my power (Applause). I have seen the work from the commencement, and I think I have a unique knowledge of the amount of thought and labour which Mr. Cole and his brothers and sisters have put into the affairs of this Society. He started the Club with lofty ideals, and those ideals have been more or less realized. That is something to be proud of. The position which this Club has gained throughout the country is so high that he may well feel pride in contemplating the outcome of his work.

We are proud to see among us to-night many of the oldest members of our Society. We are prouder still to see many guests, whose presence here shows that there is also an outer public which is appreciative of the work the Essex Field Club has been able to carry on, through its Founder and Secretary, during this long period of time (Applause). I should like, with your permission, to read some of the letters which have been sent to myself and to Mr. Miller Christy, in connection with this gathering, by yet other well-wishers who are unable to be present with us.

The Chairman then read the letters following:—

52, NEVERN SQUARE, KENSINGTON, S.W.

December 3rd, 1905.

My dear Meldola,

I was delighted to hear of this proposed official recognition of the great debt

we owe to Mr. Cole for the inception of the Club, and for his untiring labours during the past twenty-five years as our Honorary Secretary and Editor of our Journal. All this will receive suitable expression, I feel sure, at the gathering on Saturday next.

The labours of our Honorary Secretary and his colleagues have exerted an influence far beyond the limits of the Essex Field Club itself, which is now justly regarded as the *normal* Field Club, to which other kindred Societies look for guidance in all matters connected with their organization and administration. This fact is one which should not be lost sight of in expressing our gratitude to the Guest of the Evening.

I am, my dear Meldola, sincerely yours,

HORACE T. BROWN.

THE VICARAGE, PYRFORD, WOKING,
November 13th, 1905.

Dear Sir,

I am very sorry that other engagements for December 9th, and my distance from Chingford, with a bad service of trains, precludes the possibility of my being present on that day at the William Cole Recognition Fund dinner.

I am glad that your labours have been so successful, and trust that you will have a happy and pleasant gathering.

Yours sincerely,

R. ASHINGTON BULLEN.

KNIGHTON, BUCKHURST HILL,
Nov. 30, 1905.

Dear Mr. Christy,

I find it will not be possible for me to attend the dinner at which the presentation to Mr. Cole is to be made. I shall have friends staying here at the time. I hope the occasion will be worthy of the object, with which I have the greatest sympathy.

Yours very truly,

E. N. BUXTON.

EDEN HOLME, ATHERTON ROAD, FOREST GATE, E.
December 8th, 1905.

Dear Mr. Christy,

I regret very much indeed that a severe cold and sore throat will prevent me attending the dinner to-morrow at the Royal Forest Hotel, Chingford, in honour of Mr. William Cole, whose great and invaluable services are so much appreciated by the members of the Corporation of West Ham and the great mass of people residing in that district.

The Museum next to the Technical Institute will always remain a monument to his name, and gratitude will be expressed for years to come to the gentleman whose efforts brought such a useful and interesting exhibition in their midst.

I sincerely hope the function will be a great success, and again regretting my inability to be present,

Believe me, yours faithfully,

JOHN BYFORD, JUN.
(Ex-Mayor of West Ham).

BELLEFIELD, CHELMSFORD,
Nov. 28, 1905.

My dear Mr. Christy

. . . . . I should much like to have attended the dinner in honour of Mr. Wm. Cole, who has done so much for the Essex Field Club and has well earned any honour that may be offered him ; but, for an old man, it is such a long journey from Chingford to Chelmsford *after* dinner that I think it more prudent to ask to be excused

I remain, yours faithfully,

FRED. CHANCELLOR.

NASH MILLS, HEMEL HEMPSTEAD, HERTS,
Nov. 13, 1905.

Dear Prof. Meldola,

I much regret that it will not be possible for me to be present at the complimentary dinner to be given to Mr. William Cole on Dec. 9th.

Will you kindly express to him and to those who are assembled to do him honour my high appreciation of his energetic work in the promotion of natural knowledge, offer him my congratulations on the success of his endeavours during the past twenty-five years, and tell him how heartily I join in all the good wishes that will be expressed for his being long spared to continue his useful labours.

Believe me, yours sincerely,
JOHN EVANS.

CLAREMONT HOUSE, WIMBLEDON COMMON,
November 25, 1905.

My dear Meldola,

I shall not be able to be present at the dinner to Mr. Cole, but I should like to express my sense of the great value of his services to the Essex Field Club.

We are all proud of the work that has been accomplished, directly and indirectly, through its activity. One knows how much an association like ours depends for its effectiveness on the "Permanent Head of the Department. I am sure I shall not be alone in giving expression to the feeling that we owe a great—a very great—deal of our healthy activity to the motive power of the Hon. Secretary,

Yours sincerely,
J. B. FARMER.

BRICK HOUSE, MALDON,
1*st December*, 1905.

Dear Mr. Christy,

I fear I shall be unable to attend the complimentary dinner to Mr. William Cole on the 9th inst. . . . .

Should I be absent, I trust the Chairman will be able to express my very best wishes for the welfare of the Cole family in remembrance of many happy days spent together in the long ago with them and my colleagues of the Essex Field Club. Long may they and it continue to flourish.

Yours very sincerely,
EDWARD A. FITCH.

3, ENDSLEIGH STREET, TAVISTOCK SQUARE, W.C.
Nov. 28, 1905.

Dear Mr. Christy,

. . . . I find that it will be quite impossible for me to attend, much as I should have wished it, so as to have been able to congratulate Mr. Cole and his family personally for the excellent work they have done.

Yours very truly,
F. CARRUTHERS GOULD.

WOODFORD GREEN,
Nov. 12*th*, 1905.

Dear Sir,

We go to Hertfordshire on a visit on the 9th prox., so that I shall be unable to be at the dinner, with the object of which, as you know, I entirely sympathise, and am very glad that your efforts have been so successful.

Yours very truly,
ANDW. JOHNSTON.

BRITISH MUSEUM (NATURAL HISTORY), CROMWELL ROAD, LONDON, S.W.,
Nov. 6th.

My dear Meldola,

I am sorry to be unable to attend the dinner at Chingford on Dec. 9th, and the presentation to Mr. William Cole. I am yet very far from having recovered from my severe illness, which laid me up all the summer.

I can, however, join in the expression of appreciation of Mr. Cole's services to the Essex Field Club, and do so most cordially. The Club has done and is doing most valuable service in cultivating the best kind of field work. There is still plenty to be done, new things to be found and new facts discovered about old and well-known plants and animals. A Club such as ours brings a constant supply of young naturalists into contact with the problems which have occupied the older generations, and a generous spirit of comradeship and enthusiasm in the study of Nature is the result of such organization.

With best wishes, I am sincerely yours
E. RAY LANKESTER.

43, HEAD STREET, COLCHESTER,
Nov. 29, 1905.

Dear Mr. Christy,

I am sorry I shall be unable to be present on the occasion of the presentation to the Hon. Sec. of the Essex Field Club.

I should have been glad to have taken part in honouring our friend, who has done so much in furthering a love for natural history. It will be long, I suppose, before there will be another opportunity, in any part of the Kingdom, for presenting to any hon. secretary of a Society a testimonial for such an almost life-long persistent effort to interest all classes as has been exhibited by our friend, Mr. Cole.

In thanking him, we must not lose sight of the assistance we have received from other members of his family. I am glad the Society acknowledges this fact, and I trust they may all long live to enjoy the esteem they have so well merited.

I am, yours very truly,
HENRY LAVER.

LEYTONSTONE,
Nov. 11, 1905.

Dear Mr. Christy,

I shall be in the West of England at the time of your gathering and shall, therefore, be unable to be present.

. . . The address seems to me to be excellent, and truly expresses the cordial recognition which all the contributors must entertain of the admirable work Mr. Cole and his relatives have done in the cause of Essex Natural History. Believe me, yours very truly,
ARTHUR LISTER.

LOUGHTON HALL, LOUGHTON, ESSEX,
Nov. 28, 1905.

Dear Mr. Christy, . . .

Pray express my regret that I am unable to attend the dinner on the 9th at Chingford.

I wish every success to the gathering, and may Mr. Cole long continue his most useful labours. Very truly yours,
(*Rev.*) J. WHITAKER MAITLAND.

WYKEHAM HOUSE, OXFORD,
November 7, 1905.

My dear Meldola,

I am extremely sorry that the vast accumulation of work and many things during my recent long journey with the British Association prevents me from being present on an occasion which commands my warmest sympathy.

I heartily congratulate William Cole for all he has done, and the Essex Field Club in the possession of so enthusiastic and successful a helper. We want many more natural history Societies in England with the high standard of the Essex Field Club, but in order to get them we need many more men like William Cole. However, we must hope for the best, and rest content with the knowledge that such well organized and admirable effort is itself productive of good work in others, and sooner or later is certain to lead to the growth of other organizing centres of beneficent knowledge.

Hoping that you will have a most successful evening,

I am, yours sincerely,

E. B. POULTON.

TERLING PLACE, WITHAM, ESSEX,
Nov. 7th, 1905.

Dear Prof. Meldola,

I am afraid it is not possible for me to come to the dinner at Chingford on Dec. 9, but I am glad that an opportunity has been found for recognising the services of Mr. Cole as Hon. Sec. to the Club over so many years. Though I have myself been able to take but little part, I have always understood that the activities of the Club, as directed by him, have been of great advantage to the County.

Yours very truly,

RAYLEIGH.

18, ST. GEORGE'S ROAD, KILBURN, N.W.,
Dec. 8th, 1905.

My dear Professor,

Could I have had the advantage of being at Chingford, it would have been an unfeigned pleasure to me to have added my feeble tribute of esteem to the volume of appreciation which will, I am sure, go forth in recognition of the long and disinterested services rendered to our Club by Mr. W. Cole, and by his brothers and sisters.

I feel, indeed, that Mr. W. Cole has been the guiding spirit of the Club from its original inception; I know that he remains its organizing head to-day; and I trust that he may be spared to hold this position for many a day to come. I join, therefore, with you in offering to him my warm congratulation on his work in the Past and the Present, while tendering to him my sincere wishes for its continuance in the Future.

I am, Dear Professor Meldola, yours faithfully,

F. W. RUDLER.

CHELMSFORD,
Nov. 29, 1905.

Dear Mr. Christy,

I had been hoping to be able to attend the dinner given to Mr. Cole on the 9th prox., but I am so deeply engaged that I fear I shall be unable to do so.

I have known Mr. Cole ever since I came into Essex, and have so often been indebted to him for valuable assistance that I feel he richly deserves the token of appreciation to be presented to him at the dinner. I sincerely hope that he and his family may long be spared to continue their good works in the interest of the Field Club and the County of Essex.

Yours faithfully,

JOHN C. THRESH.

11, PATERNOSTER BUILDINGS, LONDON, E.C.
7th Dec., 1905.

Dear Mr. Christy,

I very much regret to find that it will be quite impossible for me to be present at the complimentary dinner to my old friend, William Cole.

As I am one of the oldest members of the Club and also a member of the first Council, it would have been peculiarly pleasant to have been present and joined in the congratulations and thanks to William Cole for his magnificent and unselfish work for our county.

Yours very truly,
T. FISHER UNWIN.

BROADSTONE, WIMBORNE,
Nov. 4th, 1905.

My dear Meldola,

It seems only the other day that you started the "Essex"—or, rather, I think the Epping Forest—Field Club, and now you are celebrating its Jubilee of 25 years.

I heartily congratulate you and Mr. Cole on the great success of your work. I look back upon my few rambles with the Club in its early days with great pleasure, while the "fungus forays" were as delightful as they were instructive. I only regret that distance and other occupations have for so many years debarred me from the pleasure of attending your meetings and excursions.[1]

With my very best wishes for the success of the Club and for the prolongation of its life into the remotest conceivable futurity,

Believe me, yours very sincerely,
ALFRED R. WALLACE.

11, CRANMER ROAD, CAMBRIDGE,
December 6th, 1905.

My dear Meldola,

I am extremely sorry to be unable to be present at the celebration dinner to Mr. Cole, but, as President of the Cambridge Philosophical Society, I must be in the chair at *their* annual dinner.

Had I been with you, I should have hoped to say much better than I can write how heartily I congratulate Mr. Cole on his consummation of a great work; for it is a great work to have founded, and successfully piloted through all these years, a club such as yours.

Field Clubs with real working power such as yours are capable of doing an immense amount of good.

Even your literary side—of course, I mean the periodical publication—expresses a vigour and appreciation of the local scientific topics of interest and importance, which arouses enthusiasm in anyone with a true love of Natural History.

You are, in the truest sense of the words, a "Field Club," and I hope you will continue to be so, prying into local Natural History, and making yourselves felt as a local power.

As for myself, I am very proud to be enrolled in honour on your list.

Believe me, yours sincerely,
H. MARSHALL WARD.

WARWICK HOUSE, ST. JAMES'S, S.W.,
Nov. 25th, 1905.

Dear Professor Meldola,

I regret very much that my engagements do not admit of my being with you on Dec. 9th, and I, therefore, write a few lines for you to communicate to the Meeting.

In the first place let me congratulate you all on the completion of 25 years of active work in our good County of Essex. You know full well how warmly I

1 In his recently-published *Autobiography* (vol. ii., p. 106) Mr. Wallace says:—"Shortly before I left England (1886) I gave the lecture on "Darwinism" to the Essex Field Club, in order to see how my diagrams of variation struck an intelligent audience, and was fairly satisfied with the result."

sympathise with all work that helps to elevate the general level of public scientific interest, and the Essex Field Club has certainly deserved well of the County for the efficient way in which it has carried out its programme. That the success of the Club is largely due to the single-minded devotion to its interests by the Hon. Secretary, Mr. William Cole, is to be declared publicly on the occasion of the presentation on the 9th.

I will ask you, therefore, at that ceremony to make known to him and to the Members assembled how much I appreciate his past services, and to let him know that he has my good wishes for his future activity, and for the future prosperity of the Club.

Yours sincerely,
FRANCES EVELYN WARWICK.

129, BEAUFORT STREET, CHELSEA, S.W.

Dear Mr. Miller Christy,

I had fully intended to come and to bring Mrs. Woodward, but advancing years and much work still to be done prevent.

My thoughts will be with you at your gathering, and I most cordially add my earnest good wishes for my friend William Cole, his brothers and sisters, and for the success of the Essex Field Club.

. . . . With much regret at not being able to be present and renewed good wishes for the success of your gathering,

Believe me, always, yours very sincerely,
HENRY WOODWARD.

KAYHOUGH, KEW,
November 11, 1905.

Dear Mr. Miller Christy,

I much regret being unable to attend the dinner on the 9th December, having only just recovered from a bad cold.

. . . . The address well expresses the sentiments we all must have towards Mr. Cole. His long and disinterested labours, so well seconded by members of his family in promoting the cause of Natural Science, deserve, as the address says, "formal and public recognition."

Yours sincerely,
CHAS. A. WRIGHT.

The CHAIRMAN (continuing) said: Before I sit down, I think it is my duty to perform one pleasant task, and that is to express my own appreciation of the skilful organizing powers which the President of the Club, Mr. Miller Christy, has displayed in arranging this little function (Applause). It is really to Mr. Christy, more than anybody else, that you are indebted for the success which has attended this movement. As he has acted as hon. secretary of this fund, I think the next thing to be done is to ask him to say a few words.

Mr. MILLER CHRISTY: Mr. Chairman, ladies and gentlemen, Our Chairman has spoken of this function as celebrating an epoch in the history of the Essex Field Club, but I may, perhaps, point out that, although the Essex Field Club is very closely connected with what we are met here to do, the organization which has got up this movement is not officially connected with the Club.

I have had in my mind for some time the idea that something ought to be done to call attention to and to recognize the very remarkable work of our founder and hon. secretary; and, when I found myself President of the Club in the twenty-sixth year of its existence, I felt there was nothing for me to do but to endeavour to set this movement on foot. This is the history of its origin.

You would say it was fiction on my part were I to tell you that the getting up of this Fund had not involved a considerable amount of labour. I admit that it

has. I feel, indeed, in some ways, like a man who has undergone what is vulgularly called "three months' hard"; but whereas, in ordinary circumstances, the man who undergoes that experience has nothing but vain regrets, I have nothing but pleasant recollections. Personally, I have my reward in the very ready response this movement has met with. It seems to have received almost universal approval. Everyone I have approached in the matter has expressed good wishes and has sent a subscription. I think I have never been associated with any movement that went with such a "bang," as you may say, from start to finish. In connection with these matters, it is, as you know, a very common experience to have to whip round very hard, but nothing of the kind has been necessary in this case. How ready the response has been is shown by the fact that no less than 169 ladies and gentlemen have sent subscriptions—(applause)—and that is, I think, a very remarkable total. Further, I should like to express to our Chairman of this evening and also to our honorary treasurer, Mr. David Howard, my personal thanks for the very great assistance they have rendered in this matter.

So much as to the origin and progress of this movement. Turning to other matters, I should like to say that I think one of the most satisfactory features we can congratulate ourselves upon in connection with this movement is the fact that it is not a farewell meeting, as so many such gatherings are. Our hon. secretary is not retiring from his labours, and we all hope that he will not retire for a long time.

I have been associated with Mr. Cole during the whole course of the Field Club's existence, and I know well the labour and the skill and forethought he has given to its work. In expressing my own appreciation of his work and that of his brothers and sisters, I should like to emphasize one remark which was contained in the letter from Professor Ray Lankester which our Chairman read to you. He said, I think, something to the effect that the whole result of what Mr. Cole has done is not yet apparent. It is not so much a matter of what we can *see* has been accomplished in the past as of what will be accomplished in the future by what he has done. That work, by attracting young men to study natural science, and by training them, will, I believe, continue to bear valuable fruit long after we have celebrated this function. In this we have, I think, the chief value of Mr. Cole's work.

MR. T. F. V. BUXTON, J.P., High Sheriff of Essex, said: Professor Meldola, ladies and gentlemen, I feel it an honour to be asked to say a few words in support of what has already been said about Mr. Cole and his work.

It seems to me that there is something peculiarly appropriate in our meeting where we do this evening. This paper that we have before us reminds us that we may look back not only over the twenty-five years of the Club's existence, but just a little further still to a great work which Mr. Cole had a hand in carrying out: I mean the rescue of Epping Forest (Applause). To-night we meet within the borders of that forest, which is now so great a boon to the public.

I am reminded that the Field Club is not connected with the forest alone or with this neighbourhood alone, but that it is an *Essex* Field Club; and I feel that the County as a whole—not only those who live in this part of the county—are indebted to Mr. Cole and his brothers and sisters for the work that they have done in the interests of science and natural history, I think that a specially-valuable branch of that work has to do with the education of children. A good deal has been done and a good deal more is likely to be

done in the way of Nature Study among children, a teaching which will make them more observant and enable them to enjoy the charms of country life. To-night, we meet within a stone's throw of one of those two museums, established by the Essex Field Club, in which children and others are being educated. I am glad to think that in these two museums we have a lasting and tangible memorial which will be a reminder to our children and grandchildren of the work which Mr. Cole and his family have done. I hope that that work will be more recognized by the county as a whole that it has been. It is much to be desired that the number of members of the Club should be increased; and I cannot but think that this meeting, which will be read about and talked about all over the county, will lead to a large increase in the membership. This, I know, is what Mr. Cole himself much desires.

While we congratulate Mr. Cole and while we remember the benefits he has conferred upon the County, I am glad we see no signs of flagging in the work, and we look forward to that work being continued for many years to come. There is something peculiarly charming in meeting with him and his two brothers and two sisters, all of whom have for so many years worked shoulder to shoulder for this good object (Applause). I am sure we all join in giving them our very hearty good wishes for long life and happiness and every blessing for time and for eternity (Applause).

Mr. DAVID HOWARD said: My part in this matter has been a very pleasant one. I must say that, when next I have to do with such a matter, I hope I may have such a man of business as our President to take the lead and do all the work. Nothing was left to me but to receive the money. On that matter, may I say, there was one disadvantage: the letters came in so fast that I found it perfectly impossible to write out all the receipts myself, and I have a horrible suspicion that my clerk is not quite an accurate reader of handwriting. Therefore, if some of you have had weird perversions of your names, please forgive, for it was owing to the number of letters that came at once (Laughter).

One thing that made it extremely pleasant to act as Treasurer has been the extreme readiness of the response. I have had a good deal of experience and I think I can read between the lines of the letters that came with subscriptions. In the case of some public subscriptions, one is conscious of something very emphatic between the lines, such as "Oh, bother this thing!" But you cannot read that between the lines of the letters I have received. There has been nothing in them but extreme cordiality. The only expressions of disapproval I received related to the fact that the limit was fixed at a guinea. On the other hand, the expressions of approval which accompanied some of the smaller subscriptions made one feel that some of these smaller subscriptions really meant as much as, or more than, some of those which reached the maximum allowed. At all events, it is perfectly true, as the President has said, there was no "flogging." The sum raised has been limited only by our own acton in limiting the maximum subscription; but I think it is sufficient, at any rate, to show the hearty appreciation we all feel of the work of our honorary secretary and his coadjutors, his brothers and sisters,

I hope it will be quite understood that this is not the sort of presentation which one occasionally hears of—that sort which is sometimes caused by a retirement and is sometimes intended to cause a retirement. There is nothing of that sort in any of our minds, that is quite certain (Applause).

As to the work that has been done in connection with the Field Club an

in similar directions by Mr. Cole and his brothers and sisters, I feel in the difficulty which was wickedly expressed in the old Latin proverb—*Pereant male qui ante nos nostra dixissent.* I heartily echo all that has been said on the subject.

Epping Forest is a very old memory of mine. My earliest ideas of anything scientific—it is long over fifty years ago—were connected with my being taught botany by my father in Epping Forest. I think I can now show the exact place where I first found sundew. I cannot find it there now, because, unfortunately, that particular pond is dried up. But that is one of my earliest remembrances, and it has given me a very strong belief in the value of natural history to the young in eliciting their sense of wonder and enquiry.

In conclusion, I wish to express my entire concurrence with this most important movement and the extreme pleasure it has given me to have any part in it (Applause).

Mr. T. VINCENT HOLMES, F.G.S., said : I have noticed that some local scientific societies which, for a time, did very good work have lasted only sixteen or eighteen years. They lasted only so long as their originators were working in full vigour with them ; but, when they disappeared, their places were not taken by others having the same interest in the society, and the society gradually vanished. We are doubly fortunate in that Mr. Cole and his brothers and sisters, who have served us from the beginning, are still with us at the end of a quarter-of-a-century of existence. I trust we may continue to have their services for another quarter of a century.

Professor BOULGER said : Unlike some of those who have addressed you, my acquaintance with the forest began simultaneously with my acquaintance with Mr. Cole. It so happened that, when I was most associated with the work of the Field Club, we had a somewhat stormy period, during which Mr. Cole and I fought side by side in a very sharp contest which followed the rescue of Epping Forest.

I am glad this is not a meeting of the Club, but that it is a special gathering for the personal congratulation of Mr. Cole and his brothers and sisters. A great many of us first made our acquaintance with Mr. Cole through the Club, and that acquaintance has ripened into friendship. One may have official relations with many men in connection with many societies, but they do not necessarily result in personal friendship. With Mr. Cole, however, I think all those who have been actively associated with him in the work of the Club have come to look upon him as a personal friend. We all congratulate him upon the result of his long work, and we hope that that work may long continue (Applause).

Mr. P. GELLATLY, J.P., Verderer of Epping Forest, said: I come here to-night simply as a neighbour of our good friend and not to represent anybody ; but, having been called upon unexpectedly to say something as a Verderer of Epping Forest, I should like to associate Mr. Cole with our work.

Since Epping Forest was dedicated by the Queen for the benefit of the people, the Epping Forest Committee (of whom the Verderers form a part) have taken the deepest interest in carrying out the duties devolving upon them and have improved the glorious open space committed to their charge.

When they had made the important restorations to Queen's Elizabeth Lodge, which they were bound to preserve as an historic building, and had restored it to something like its ancient character, Mr. Cole saw his opportunity of utilizing the spacious rooms as a Natural History Museum especially connected with the

Forest. He worked with consummate knowledge in bringing about the arrangements for establishing a beautiful collection of objects and so arranged the specimens as to make them most valuable, not only for pleasure, but also for the teaching of those who visit the Forest.

I may say on behalf of the Verderers that they are delighted to testify to the great work accomplished by Mr. Cole.

Knowing (as I do) the Corporation of the City of London and its Epping Forest Committee, I am sure they will cordially join with me in expressing their admiration for the important work so admirably carried out by Mr. Cole, and would thank him for the educational advantages bestowed on this neighbourhood and the County, if not the country at large.

Mr. W. WHITAKER, F.R.S., said when he saw the proposal that a dinner should be given to Mr. Cole, his brothers, and his sisters, it seemed to him a very nice idea. Mr. Cole did not want it all for himself—(laughter)—but he wanted his relations and friends to join him. He (Mr. Whitaker) had been a lonely man: that was to say he never had brothers or sisters and never understood what use brothers and sisters were, but he began to understand it now. He wished he had had brothers and sisters: he should have got them to do his work for him (Laughter).

The Essex Field Club was a natural history society which had the whole of a large county to itself. That meant that it had a wide range for its work, but it also meant that it had great responsibility. That Club had to encourage the scientific work of a large county, and it had done it well so far, largely through the steady work of their good friend Mr. Cole. That it would continue to work, he did not doubt. He looked forward to a long life of the Club with Mr. Cole as secretary, and to a still longer life when most of them had gone, as they must all go.

Mr. HORACE B. WOODWARD eulogised the work of Mr. Cole, and said that the publications of the Essex Field Club were the most interesting and the best-edited published by any of the Field Clubs. He sympathised heartily with this acknowledgment of the great services that Mr. Cole had rendered.

Mr. JOHN SPILLER, speaking as one of the original members of the Club, heartily endorsed all that had been said with regard to their indebtedness to their founder, Mr. Cole, and the members of the family who had so heartily supported him in the endeavour to spread the knowledge of science amongst those who had, in that glorious county, so many opportunities of studying nature at first hand.

Mr. WILFRED MARK WEBB, Hon. Sec. of the Selborne Society, said his Society very cordially accepted Mr. Christy's invitation to take part in honouring Mr. Cole. He pointed out the fact that Mr. Cole had given hundreds of people great pleasure by his work in the county.

The CHAIRMAN: On your behalf, ladies and gentlemen, I have now pleasure in handing Mr. William Cole the following address:—

To MR. WILLIAM COLE, F.L.S., &c.,
Hon. Sec. Essex Field Club,
BUCKHURST HILL, ESSEX.

We, whose names are appended, desire to express to you our very warm appreciation of the scientific, educational and other public work in which you have been engaged for many years,

The foundation of the Essex Field Club, in 1880, was due to your initiative. Since then, for a quarter of a century, you have acted continuously as its Honorary Secretary and have edited the whole of its publications—a combination of services which we imagine to be unique. To your labours during this long period are due, in the main, the leading position the Club now holds among Local Scientific Societies, and also the establishment of its two Museums (the Epping Forest Museum, at Chingford, and the Essex Museum of Natural History, at Stratford), of both of which you are now Curator.

In the Rescue of Epping Forest, you took an active part, and you have watched jealously over its interests ever since.

We feel strongly that these long-continued and disinterested labours in promoting locally the Cause of Natural Science deserve formal and public recognition; and the present time (in the twenty-fifth year of the Society which you founded and have served so assiduously) seems peculiarly fitting for the purpose.

We ask you, therefore, to accept our grateful thanks, together with the accompanying Purse of One Hundred and Ten Guineas. The latter is, of course, no more than a slight token of our appreciation of your labours, any adequate remuneration being obviously impossible.

Among those who have subscribed (169 in number, the subscription being limited to one guinea) are the High Sheriff of Essex; the Chairman of the Essex County Council; the Mayors of West Ham and of Chelmsford; the Chairman of the Epping Forest Committee of the Corporation of London; all the four Verderers of Epping Forest; the President and many Fellows of the Royal Society; many Fellows of other Learned Societies; the President, the eight Past-Presidents, and numerous Members of the Essex Field Club; and others who have been associated with you in your work, or have admired it.

Whilst thus thanking you in particular, we desire also to thank your brothers, Messrs. B. G. and H. A. Cole, and your sisters, Miss Cole and Miss Jane Cole, all of whom have helped you throughout, as we know, most untiringly.

We trust that you and they may long continue the work you have carried on so well, and for such a lengthened period.

Adams, H. J., F.E.S.
Avenell, George
Avery, John, C.A., F.S.S.
Baddeley, W. H.
Barnes, H. J.
Bartleet, H. S.
Benham, C. E.
Biggs, Miss M. M.
Bird, James
Boake, Arthur, F.C.S.
Boake, E. J., B.A.
Boswell, R. Bruce, M.A.
Boulger, Prof. G. S., F.L.S., F.G.S.
Bowles, E. Augustus, M.A., F.L.S., F.E.S.
Brand, F. J.
Briscoe, A. E., B.SC.
Brown, Horace T., LL.D., F.R.S., F.C.S., F.G.S.
Brown, W. H.
Bryan, Colonel, C.E.
Bullen, Rev. R. Ashington, B.A., F.L.S.
Buxton, Edward North, J.P., D.L., etc. (*Verderer, Epping Forest*)
Buxton, Mrs. E. North
Buxton, Gerald, J.P.
Buxton, Sir T. Fowell, Bart., K.C.M.G., D.L., etc. (*Verderer, Epping Forest*)
Buxton, Lady Victoria [*Essex*)
Buxton, T. F. Victor, J.P. (*High Sheriff of*
Byford, J., junr. (*Mayor of West Ham*)
Cansdale, W. D., F.E.S.
Chancellor, F., J.P. (*Mayor of Chelmsford*)
Christy Miller, F.L.S. (*President, Essex Field Club*)
Clapham, Mrs. E.
Clark, J. A., F.E.S.
Clark, Percy, B.A.
Clarke, F. C.
Coburn, H. I.
Colchester, The Bishop of
Coles, Mrs. Harriet
Colsell, Robert
Corcoran, Bryan
Dalton, W. H., F.G.S., F.C.S.
Dawson, Charles J.
Dent, Francis
Dewick, Rev. E. S., F.S.A., F.G.S.
Duffield, F. H.
Dymond, T. S., F.C.S., F.I.C.
Edwards, J. Passmore
Edwards, Stanley, F.L.S., F.Z.S., F.E.S.
Elliott, F. W.
Evans, Sir John, K.C.B., D.C.L., LL.D., F.R.S., etc.

Farmer, Prof. J. B., M.A., F.R.S.
Finzi, J. A.
Finzi, Mrs. J. A.
Fitch, E. A., F.L.S., F.E.S.
Forbes, W. P.
Fountain, F. [*Forest*)
Gellatly, P., J.P., D.L. (*Verderer, Epping*
George, William
Gould, F. Carruthers
Gould, I. Chalkley
Green, F. W.
Hall, Miss K. M., F.L.S.
Hall, Samuel, F.C.S.
Hanbury, Frederick J., F.L.S.
Harrison, A.
Harrison, A. W.
Harting, J. E., F.L.S., F.Z.S.
Hawkins, C. E. W.
Hildyard, F. W., F.L.S.
Hilleary, F. E., LL.D.
Holmes, Prof. E. M., F.L.S.
Holmes, T. Vincent, F.G.S.
Hope, G. P., J.P., etc.
Horncastle, The Vicomte (*Chairman, Epping Forest Committee*)
Howard, David, J.P., D.L., F.I.C., F.C.S.
Howard, D. Lloyd
Howell, Rev. W. C., M.A.
Hulton, The Rev. Canon, M.A.
Hunt, Rev. A. L.
Hunt, Reuben
Hurnard, S. F., J.P.
Hutton, Rev. A. B., M.A.
Jennings Cecil F. J.
Johnson, Samuel H.
Johnson, Mrs. Samuel H.
Johnston, Andrew, J.P., D.L. (*Chairman, Essex County Council*)
Jones, Robert, M.D.
Kenworthy, Rev. J. W.
Knight, J. W., F.G.S.
Lach-Szyrma, Rev. W. S., M.A.
Landon, Colonel Frank, V.D.
Laver, Henry, F.L.S., F.S.A.
Linder, Ernest, B.SC.
Lister, Arthur, J.P., F.R.S., F.L.S.
Lodge, Robert
Macandrew, W., J.P.
Maitland, Rev. J. Whittaker, M.A.
Mann, Mrs.
McConnell, Prof. Primrose, B.SC.
McIntyre, F.
McLachlan, Hugh
Meldola, Prof. R., F.R.S., F.E.S., etc (*President Chemical Society*
Miles, George R.
Moon, Z., F.R.HIST.S.
Mothersole, Henry
Newton, E. T., F.R.S., F.G.S.
Nutter, Miss J.
Oldham, Charles
Paulson, Robert
Picton, Harold, B.SC., F.C.S.
Ping, W., M.A., F.C.S.
Poulton, E. B., M.A., F.R.S., F.L.S., F.G.S., F.E.S., etc.
Prance, Rev. L. N., M.A., F.S.A.
Pritchett, G. E., F.S.A.
Rayleigh, The Lord, M.A., D.C.L., LL.D., etc. (*President, Royal Society*)
Read, Charles H., F.S.A., etc.
Read, E. A. (*Verderer, Epping Forest*)
Reader, Frank W.
Reader, Thomas W., F.G.S.
Roberts, J. R., J.P.
Robinson, T. G., J.P.
Rogers, John F.
Rose, Alexander B.
Rose, Matthew
Royle, Mrs.
Rudler, F. W., I.S.O., F.G.S.
Russell, Rev. A. F., M.A.
Russell, Champion B., M.A., J.P., etc.
Scourfield, D. J., F.R.M.S.
Selborne Society, The (W. Mark Webb, F.L.S., *Hon Sec*)
Shenstone, J. C., F.L.S.
Shipley, A. E., M.A., F.R.S.
Sinclair, F. G., J.P., F.L.S.
Smith, Frederick, J.P.
Smith, Worthington, G., F.L.S., etc.
Snell, Henry C.
Sorby, H. C., J.P., LL.D., F.R.S., F.G.S.
Spicer, Albert, J.P.
Spiller, John, F.C.S., F.I.C.
Spurrell, F. C. J., F.G.S.
Stable, D. Wintringham, LL.B., J.P. (*High Sheriff of Montgomeryshire*)
Steet, C. H.
Sturdy, Francis T.
Tabor, H. S.
Taylor, Victor
Thompson, John
Thresh, John C., D.SC., M.B.
Turner E. E.
Unthank, H. W., B.A., B.SC.
Unwin, T. Fisher
Varley, F. H., F.R.A.S.
Vaughan, G. E.
Vincent, Ralph
Wall, Howard
Wall, Mrs. Howard
Waller, W. C., M.A., F.S.A., J.P.
Ward, Prof. H. Marshall, D.SC., F.R.S., F.L.S., etc.
Warwick, The Countess of
Whitaker, W., B.A., F.R.S., F.G.S.
White, J. H.
Whitehead, H.
Wilks, Mark
Wilson, Joseph
Wilson, Rev. W. L.
Winstone, Benjamin, F.C.S., F.G.S.
Wood, J. M. C.E.
Woodward, Dr. Henry, LL.D., F.R.S., F.G.S.
Woodward, Horace B., F.R.S., F.G.S.
Wright, Charles A., F.L.S., F.Z.S.
Wythes, E. J., J.P., D.L.

Signed on behalf of the Subscribers

R. MELDOLA, *Chairman of Committee.* DAVID HOWARD, *Hon. Treasurer.* MILLER CHRISTY, *Hon. Secretary.*

Mr. DAVID HOWARD. Mr. Cole, on behalf of the subscribers, I have great pleasure in presenting you with a purse of One Hundred and Ten Guineas. With a little more time, the amount would have grown yet further. As I have said

before, if you only knew how pleasantly cordial were the letters which came with the subscriptions, you would realize even more how your services and those of your brothers and sisters have been appreciated.

Mr. WILLIAM COLE, in reply, said : Professor Meldola, Mr. David Howard, Mr. Miller Christy, Ladies, and Gentlemen—perhaps, I might say old friends to all of you. On behalf of my sisters and brothers, as well as on my own behalf, I thank you most heartily for the kindness which has prompted you to present us with this beautiful testimonial in appreciation of our services to the Club and our attempt to cultivate a taste for natural history in the county of Essex.

I feel it difficult to express my feelings of gratitude to so many ladies and gentlemen, well known in Essex and eminent in the scientific world, for the very flattering way in which they have spoken of my share in the work of the Field Club during the last 26 years. I do feel proud and delighted that such a gathering as this has been held, and thankful for the gracious expressions of esteem in the letters which Professor Meldola has read. I know that my brothers and sisters are equally grateful to you, and they desire me to thank you in their names. This Address will always be a pleasant memorial of the many friendships which we have formed during the progress of the Club, and of the interesting investigations in which we have taken part. Some of these investigations have added, I cannot help thinking, to the knowledge we possessed of the natural history and archæology of Essex, and I hope that, in the future, the Club will engage in many more enquiries of the kind. I thank you also most sincerely for this very tangible expression of your goodwill and for your presence on this memorable evening, and I gratefully accept the flattering memorial and accompanying purse. I must add my full appreciation of the services of Mr. Miller Christy in having promoted this most successful gathering. I know something of secretarial duties, and I am sure that both he and Mr. David Howard must have given up a great deal of their valuable time to the friendly work they so kindly took in hand.

In accepting this present and memorial, you must not think that I arrogate to myself the sole credit of promoting the interests of the Club. I have on my right hand Professor Meldola, the first President—(applause)—and I have the best means of knowing what intense interest he took in its inception. I well remember the talks which led to the formation of the Club, and we all recall the small assembly of supporters held at his rooms in John Street, Bedford Row, at which the draft of his excellent " Inaugural Address " was read and discussed. Whenever people apply to me for advice as to the formation of a Field Club or similar society, I always refer them to Professor Meldola's " Address," as being, perhaps, the best paper ever written on what should be the work of a society such as ours. Not only did Professor Meldola follow up this remarkable programme with a series of admirable addresses, but, at our meetings during the whole 26 years' existence of the Club, he has always, when present, led the discussion on subjects brought forward in a way that has elevated the debate and given it a truly scientific character. All members of the Club owe a very great debt of gratitude to Professor Meldola for what he has done for the Society (Applause).

We have always had a very excellent Council. I think that very few societies of the nature of the Essex Field Club ever had a Council which has met in such large numbers and whose members took such an intense personal interest

in the proceedings. We have here to-night two of our past presidents, Professor Boulger, who did such admirable service in the fight over some questions affecting Epping Forest, and Mr. T. V. Holmes, whose work on the Dene-holes you all remember. Mr. Holmes and I spent six weeks underground at Grays, investigating these pits, and his report in our Journal sums up all that is really known concerning them. Then there is Mr. Henry J. Barnes, our first Treasurer, who did much valuable service. That reminds me that the Club was much favoured in having, at one time, a lady Treasurer. Mr. Royle, who was Treasurer, had to go abroad on scientific work, and Mrs. Royle very kindly took his place.

With respect to our work, will you allow me to mention my brother, Mr. B. G. Cole, who has acted as assistant hon. secretary during the whole life of the Club. His has been a very quiet work; it does not loom largely in the *Transactions* of the club; but it has been, nevertheless, of great importance to its welfare.

Concerning the Museums, I should like to acknowledge our indebtedness, first, to the Corporation of London and its Epping Forest Committee for their kindness in granting the use of the old Tudor Lodge at Chingford as a home for our Forest Museum, and, secondly, to the Corporation of West Ham for their public spirit in agreeing to our application for the establishment of a County Museum at West Ham. Whatever may be said of local corporations, there is one thing which most of them strongly favour, and that is, education. When Mr. Howard and others first met the Corporation of West Ham to discuss our proposal, we were received in a most cordial way. We are still being treated most appreciatively, and the progress of the museum in West Ham is mainly due to the friendly manner in which the efforts of the Field Club have been met by the Corporation. I have every reason to believe that the Corporation will continue to cordially support the Museum, and that it will become in time a treasure-house for specimens illustrating the natural history of Essex and a valuable aid in imparting instructions to young people and to schools in the district.

With regard to our little museum in the Forest, it is not in any way complete, and I should certainly like to see the scheme carried out as it should be. When the initial work has been accomplished, I venture to hope that the City Corporation will see their way to set it on a permanent and sound foundation similar to the arrangements by which the Essex Museum has been taken over by the Corporation of West Ham. But that is, of course, a matter for the future.

We have had to-night a great deal of retrospective talk. I prefer not to regard our work as completed, but that rather we should take for our motto Tennyson's lines—"That which we have done but earnest of the things that we shall do," and seek in the coming years even better lines of progress.

For instance, there is the proposal that the Club should organize a station for local biological research. This is one of my pet projects. I believe it will be brought before you a concrete form in the near future.

I have alluded to the exploration work we should like to do. There is an immense field for it in Essex, both in archæology and natural history. For instance, the question of the origin and use of Dene-holes should be settled definitely. I believe it is settled to Mr. Holmes' satisfaction and to my own, but others are not quite so sure, and more work should certainly be done. Then there is the origin and meaning of our Essex "Red-Hills." These puzzling

remains should be taken in hand quickly, because they are fast disappearing from various causes.

We have started a Photographic Survey of Essex in an admirable way under Mr. Victor Taylor's superintendence, and I think we have every hope that in a few years that will become an important branch of our work.

There is another little "fad" of mine which I hope to realize during the next few years. I propose to make an attempt to register the *voices* of eminent men in the county and of those who have presided over the meetings of the Club. Then we have the vanishing speech of the natives of Essex. School Boards are invading the remotest places in our County and destroying all its peculiar idioms, and I am afraid that the dialect songs of Essex will utterly disappear in the course of a few years. I should like to secure some record of these old harvest home songs and native carols on permanent phonographic cylinders or discs before it is too late. I am told that in the Saffron Walden district there is a real witch—or, rather, a woman who believes in witchcraft. Essex was always famed for witchcraft; and it would be well to register some native "incantations" while there is yet a chance!

In conclusion, the English language is, I think, deficient in expressions of gratitude, and I cannot perhaps do more than say again, "I thank you." (Applause.)

On the motion of Mr. Whitaker, a vote of thanks was passed to Professor Meldola for presiding; and the guests then separated.

[Thanks are due to Mr. Edwin C. Davis, Chief Reporter of the *Stratford Express*, who undertook, single-handed and for a merely nominal fee, the very arduous task of reporting the foregoing speeches, and did it most admirably.]

NOTES—ORIGINAL AND SELECTED.

MAMMALIA.

Whale at Mersea in 1299.—Mr. Miller Christy sends the following extract from *The Wardrobe Accounts of King Edward I.* (Society of Antiquaries, 1787), page 76 :—

Custus circa balenam per vicecom' Essex.—Johanni de la Lee, vicecom' Essex' et Hertford', pro denar' per ipsum solutis diversis hominibus custodientibus quandam balenam captam in insula de Merseye; uno dolio vacuo empto pro eadem balena infra ponenda; sale empto pro eadem salienda; cariagio ejusdem de predicta insula usque Staunford ad curiam; una cum expens' unius hominis equitio conducentis eadem balena[1] ibidem mense Maii ..... £o 14 8

1 ? Eadem balena—sc. eadem balona.

We are indebted to the kindness of Mr. W. C. Waller, M.A., F.S.A., for a translation of the Latin :—

Charges in respect of a whale per the Sheriff of Essex.—To John de la Lee, Sheriff of Essex and Herts, for moneys paid by him to divers persons in charge of a certain whale caught off the island of Merseye [Mersea] ; for one empty cask bought to put the whale in ; for salt bought to salt the same ; for the carriage of the same from the island aforesaid to Staunford[2] to the court ; together with the expenses of one man with a team conducting the said whale there in the month of May £0 14 8

INSECTS.

Plusia moneta at Buckhurst Hill.—I had the pleasure of netting two specimens of this moth in our garden last summer—one on the 7th of July and the other on the 11th of the same month. I saw another a few evenings later, but did not catch it. The moths were hovering over the flowers of the Rose-bay, *Epilobium angustifolium*, of which we have a great store in the garden. This adds another to the three or four records of this moth in Essex. It was first recognised as British in 1890.—B. G. Cole, Buckhurst Hill.

Prodenia littoralis, Boisd., a New British Moth.—At the meeting of the Club on January 27th, 1906, Prof. R. Meldola, F.R.S., exhibited, on behalf of Major Robertson, a specimen of this scarce European moth, which had appeared in his breeding cage in July last. All the Major's larvæ in this cage had been collected in the Bournemouth district, Hampshire. *Prodenia littoralis* has a wide distribution in S.E. Europe, Asia, India, &c., and it is to be hoped that this handsome Noctua, like *Plusia moneta*, has "come to stay." The coming summer may bring further news of it as an immigrant in Britain.—B.G.C.

2 ? Staunford--sc. Stanford-le-Hope, near the Thames, and about 30 miles from Mersea. It is not apparent what court is meant ; Morant sheds no light on it.—W.C.W.

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